ANNEX NO. 3
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LANGLEY RESEARCH CENTER
AND
RADFORD UNIVERSITY
UNDER SPACE ACT UMBRELLA AGREEMENT SAA1-32792
FOR
NASA'S MODELING AND SIMULATION-BASED EDUCATOR PROFESSIONAL DEVELOPMENT (EPD) WORKSHOP FOR HIGH SCHOOL MATHEMATICS

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of Radford University and NASA to integrate modeling and simulation (MODSIM), the NASA Science, Technology, Engineering, and Mathematics (STEM) context, professional development and STEM engagement experiences into the teaching and learning of high school mathematics. As described in this Annex, NASA LaRC will partner with Radford University to offer Virginia high school mathematics educators a unique opportunity to work with NASA LaRC for up to 80 hours of professional development and STEM engagement opportunities. During this time, high school mathematics educators will be immersed in NASA's missions, presentations by NASA LaRC researchers, NASA's Office of STEM Engagement (OSTEM) activities, tours of NASA facilities, virtual and face-to-face educator professional development culturally responsive applications. Educators will experience modeling and simulation (MODSIM) through NASA LaRC subject-matter-experts, researchers, and OSTEM staff and Radford faculty to solve real-world science and engineering-based problems and unique ways to engage the future STEM workforce in the classroom. The goal of the MODSIM Educator Professional Development (EPD) experience is to provide leadership experiences through professional development, integration of MODSIM concepts, exposure to NASA's missions, and associated tools into the mathematics curriculum and to prepare lesson plans and other instructional products to engage and inspire the future STEM workforce. Participation in this opportunity will be limited to 10-20 participants and 5 facilitators (MODSIM alumni). All participants and facilitators must be U.S. citizens.

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The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e).

ARTICLE 2. RESPONSIBILITIES

A. NASA LaRC will use reasonable efforts to:

1. Coordinate all activities and collaborate with Partner to develop the overall schedule for the engagements.

a. Identify NASA participants.
b. Recruit modeling and simulation professionals to engage with the educators.
c. Consult with Partner in the selection process of facilitators and participants.

2. Provide professional development to:
a. Demonstrate how modeling and simulation (MODSIM) are used at NASA to solve real world engineering and science-based problems.
b. Support high school mathematics educators to integrate MODSIM concepts, NASA's missions, and culturally responsive teaching into their curriculum using NASA's resources.
Prepare lesson plans and instructional products incorporating MODSIM and NASA's missions.
c. Provide guidance to educators for implementation of NASA activities and resources in the classroom.
d. Provide a learning environment for the educators during the engagements. This may be physical or virtual.
e. Arrange tours of the LaRC facilities and laboratories under normal operating conditions.
f. Provide NASA educators to assist the participants with the development of lesson plans and instructional materials and provide support. This work can be done virtually.
g. Work with Partner and the educators throughout the program to incorporate the lesson plans using open source math software and culturally responsive teaching.
h. Provide experiential opportunities throughout the program for:
• STEM engagement support.
• Classroom implementation support.
• NASA LaRC event support.
• Educator Professional Development Support.

B. Radford University will use reasonable efforts to:

1. Assist NASA with coordination of all engagement activities to include culturally-relevant teaching, Desmos (and GeoGebra) instruction, educator resources, etc.
2. Promote and otherwise market the engagement, including the preparation of press release, social media exposure, etc.
3. Consult with NASA to select program facilitators and participants.
4. Pay the non-NASA instructor adequately for each engagement as applicable.
5. Evaluate the engagement.
6. Prepare the final report for the engagement.
7. Collaborate with NASA to compile lessons learned documentation and to develop recommendations for improving the engagement.
8. Provide infrastructure for keeping the community participants in touch with each other.
9. Disseminate to all participants prior to each engagement all applicable NASA regulations and federal laws (provided to Partner from NASA) and ensure all participants are aware of any program expectations or rules.

10. Ensure attendees participate in an evaluation of the engagement.
121 Provide continuing education units to facilitators and participants who complete professional development hours associated with the program.

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

1. NASA LaRC and Radford University will collaborate to plan all activities and develop the overall schedule for the engagements. a. Radford will identify non-NASA instructors. b. NASA Langley will recruit modeling and simulation professionals to engage with the participants. c. NASA Langley will consult with Partner in the selection process of facilitators and participants.	September 2022
2. NASA LaRC and Radford University will collaborate to implement the modeling and simulation EPD educator professional development engagement. a. NASA LaRC and Radford University will demonstrate how modeling and simulation (MODSIM) are used at NASA to solve real world engineering and science-based problems. b. NASA LaRC and Radford University will support high school mathematics educators to integrate MODSIM concepts, NASA's missions, and culturally responsive teaching into their curriculum through the use of NASA's resources. c. NASA LaRC and Radford University will prepare lesson plans and instructional products incorporating MODSIM and NASA's missions. d. NASA LaRC and Radford University will provide guidance to educators for implementation of NASA activities and resources in the classroom. e. NASA LaRC will provide a learning environment for the educators during the engagements. This may be physical or virtual. f. NASA LaRC and Radford University will arrange tours of the LaRC facilities and laboratories	October 2022 - June 2023

under normal operating conditions.

g. NASA LaRC and Radford University will provide educators to assist the participants with the development of lesson plans and instructional materials, provide support, and best practices. This work can be done virtually.

h. NASA LaRC and Radford University will work with the participants during the engagement to incorporate the lesson plans using open sources math software and culturally responsive teaching.

i. NASA LaRC and Radford University will provide experiential opportunities for:

- STEM engagement support.
- Classroom implementation support.
- NASA LaRC event support.
- Educator Professional Development Support

3. NASA and Radford will coordinate to evaluate the engagement. a. Lessons learned. b. Radford University will conduct evaluation and prepare report.	August 2023

ARTICLE 4. FINANCIAL OBLIGATIONS

There will be no transfer of funds between the Parties under this Agreement and each Party will fund its own participation. All activities under or pursuant to this Agreement are subject to the availability of funds, and no provision of this Agreement shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, (31 U.S.C. § 1341).

ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of one (1) year.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data: *The Disclosing Party's Background Data, if any, will be identified in a separate technical document*.
2. Third Party Proprietary Data: *The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate technical document*.
3. Controlled Government Data: *The Disclosing Party's Controlled Government Data, if any, will be identified in a separate technical document*.
4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement: *None*.

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or one (1) year from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Technical Points of Contact

NASA Langley Research Center
Dr. Garnise A. Dennis
NASA LaRC OSTEM Integration Manager
Mail Stop: 040
Langley Research Center
Hampton, VA 23681
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Radford University
Dr. Darryl Corey
Professor of Mathematics Education
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Radford, VA 24142-6959
Phone: 540-831-7622
dcorey3@radford.edu

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LANGLEY RESEARCH CENTER

BY: Mary Dijoseph Digitally signed by Mary Dijoseph Date: 2022.09.19 16:48:39 -04'00'
Mary DiJoseph
Director, Aeronautics Research Directorate

DATE:

RADFORD UNIVERSITY

BY:
Dr. Darryl Corey
Professor of Mathematics Education

DATE: 9/19/2022

BY: DocuSigned by: Phil Crigger 0C19DA356D8044A...
Phil Crigger
Contract & Agreement Coordinator

DATE: 9/19/2022 | 3:25 PM EDT